KansasCity.com

Posted on Sun, Apr. 09, 2006

Foundation's grants a winning school formula?

As high-tech jobs flourish, U.S. children lag behind their counterparts around the world in math and science. In Kansas City, though, the Kauffman Foundation is sending help — $15 million for area schools.

By JOE ROBERTSON
The Kansas City Star

CHRIS OBERHOLTZ/The Kansas City Star

Jolene Abernetha (left) and Helena Davis, members of Central High School's technology club, have been working with mentors to design and build a robot. This week the Ewing Marion Kauffman Foundation will announce an initiative to boost math and science education.

AMERICAN STUDENTS ARE FALLING BEHIND

As they get older, U.S. students fall back in the pack:

	MATH	SCIENCE
U.S. 4th-graders	12 out of 25 nations	7 out of 25
U.S. 12th-graders	19 out of 21 nations	16 out of 21

Fewer U.S. students are earning engineering degrees:

	1985	2000	Change
China	79,556	207,459	+161%
South Korea	23,539	56,508	+140%
United Kingdom	9,630	20,280	+111%
U.S.	**74,425**	**59,536**	**-20%**

More than half of all engineering doctoral degrees from U.S. colleges go to non-U.S. citizens:

Total	5,502
U.S. citizens	2,139
Non-U.S. citizens	3,068
Citizenship unknown	295

KAUFFMAN'S ANSWER

Pump millions into schools to improve math and science programs. The new infusion: $15 million spread among 11 public districts and the Catholic school systems on both sides of the state line.

JIM BARCUS/The Kansas City Star

On Friday, Becky Metcalf helped Olathe Northwest students Jason Reynolds (left) and Andrew Johnson with a “battlebots” class.

Fourteen-year-old David Collins untangled himself from a half-assembled robot to spell out a message to Kansas City area students.

“Tell them how it is,” he said. “This century is going to be all tech.”

Amid alarming trends locally and nationwide, the Ewing Marion Kauffman Foundation this week will announce a $15 million investment in math and science programs at 13 area public and parochial school systems.

The global market is starving for engineers. Other nations, particularly in Asia and Europe, are boosting the number of college graduates going into the field by tens of thousands every year. Numbers for the United States, meanwhile, have declined.

And in rankings with other developed nations, the U.S. falls toward the bottom in 12th-graders’ performance in math and science.

Kansas City hasn’t broken the trend, despite the convergence of the Midwest Research Institute and some of the nation’s largest engineering firms, Burns & McDonnell, Black & Veatch and HNTB.

“The gap between the demand in the world and where kids are is so huge,” said Carl Schramm, president of the Kauffman Foundation.

The foundation, which already has invested $7 million in ideas like robotics programs, is ramping up in the second year of a 10-year initiative to work with schools. The goals: Innovate in classrooms, strengthen teachers, inspire students and improve academic performance.

The enthusiasm embedded in David, a freshman in Central High School in Kansas City, has grown far too scarce.

“You know how you plug into the wall and get your power?” he said. “Technology is my power cord. I’ve got to have my plugs.”

Concern at the national level prompted President Bush this year to announce an initiative to train 70,000 high school teachers for advanced-placement math and science courses and to bring in 30,000 math and science professionals to teach in classrooms.

Missouri Gov. Matt Blunt has called for a math and science summit in Jefferson City later this month. And in Kansas, Gov. Kathleen Sebelius on Thursday signed into law a measure creating a Kansas Academy of Math and Science.

In Kansas City, engineering firms have tried to spur students, and corporations such as Bayer have invested hundreds of thousands of dollars in science programs.

The Kauffman Foundation is working with its traditional partners in the urban core — the Kansas City and Kansas City, Kan., school districts — in their math and science plans. But it’s also casting its net across the five-county area, working directly with districts as diverse as suburban Blue Valley and rural West Platte.

“We felt like this is such a godsend,” said West Platte Superintendent Kyle Stephenson.

The tiny 650-student district in Weston already emphasizes science: Many of its students won multiple awards in the recent regional science fair. But many of its students took physics over the Internet.

West Platte wants to use its Kauffman money — $600,000 over three years — to expand its curriculum and hire new faculty, including a physics teacher and part-time science and math instructors.

The Olathe School District, promised $1.5 million, will offer stronger elementary and middle school programs to better prepare students for programs like the aerospace engineering curriculum at Olathe Northwest High School.

Noah Smith was 5 years old and making paper airplanes when he told his father, “I want to design planes.”

Now a senior at Olathe Northwest, he’s part of a team building an unmanned, remote-controlled aerial reconnaissance vehicle.

But creating and maintaining school programs that prepare students to pursue those kinds of dreams isn’t easy, said Sue Rippe, an instructor in the aerospace engineering program. On her wish list: A three-dimensional printer that will cost $25,000 to $30,000.

“Keeping up with technology is incredibly expensive,” Rippe said.

Among the other districts, Hickman Mills plans to use some of its $1.25 million in Kauffman money to create summer institutes for both teachers and students. The Diocese of Kansas City-St. Joseph will devote some of its $1.08 million to hiring and training math and science mentors.

The Kauffman Foundation also is establishing a network to gather and share ideas among all area schools.

“This will succeed only as much as all these parties come together,” said Dennis Cheek, Kauffman’s vice president of education. “We can make Kansas City the national exemplar of how we can strengthen and improve math and science education.”

At the heart of it all is the mindset of today’s students.

“The reality is that a fairly large number of students, male and female, reject the idea of math and science careers,” said Margo Quiriconi, the foundation’s director of research and policy in education. “Four out of 10 even say they believe they’d be *unhappy* with that kind of work.”

This is not good news considering that Black & Veatch, for instance, figures on hiring 800 to 1,000 professionals in 2006, mostly engineers.

“All the markets are continuing to grow,” spokesman Carl Pletz said.

Kelly Becker, a chemist with Midwest Research Institute, wanted to volunteer as a tutor at Kansas City’s Paseo Academy, then wound up working with teachers this year to create an after-school physics class and involve some 50 co-workers in a tutoring program.

“The concern was not just the small number of students interested (in physics), but the gaps in foundational math,” Becker said.

Paseo and MRI aren’t just helping students who express interest in engineering, but are pursuing students who might not have considered math and science careers.

The trick, said Burns & McDonnell electrical engineer Carles Miller, is getting more students to see themselves reflected in real engineers.

He and several other Burns & McDonnell professionals volunteered to help David and the rest of Central High School’s robotics team build their Kauffman-funded robot for one of several contests across the country in the past month.

After school and often into the night they worked, and the students saw hard-working, fun-loving, laughing engineers, helping them solve problems.

“Most kids don’t know what engineers do,” Miller said.

The message, said Burns & McDonnell designer Tina Cozart, is that students who start now, who push themselves, will likely find they enjoy the journey through college and the career at the other end — just as the engineers in their classroom have.

“They see me,” Cozart said. “I’m here. Hey, it wasn’t easy. But I’m here.”

As the schools begin to implement their programs, the Kauffman Foundation will watch to see what’s working, just as it is measuring the progress of other math and science efforts already funded, Cheek said.

Among its earlier investments, the foundation has put $2 million in the FIRST robotics program; an additional $1.4 million for the Metropolitan Community Colleges’ Project Lead the Way, an engineering instruction program; and $250,000 for the National Institute for Construction Excellence’s Crayons to CAD program.

It is supporting the National Geographic Society’s JASON Project curriculum in several schools; summer science enrichment camps; an after-school homework help phone-in service; and teacher training academies.

Before the 10-year focus plays out, Cheek said, the Kauffman Foundation expects to see more students taking higher level math and science courses and pursuing a wider array of careers. Remedial classes should become obsolete.

“We don’t want to track just state test scores,” Cheek said. “We’re looking for systemwide change.”

Kansas City, he said, can gain a reputation as the place to bring innovative ideas.

“It’s our desire to elevate the idea of Kansas City as a laboratory, as a test bed for education,” Cheek said.

If it works, more students will go into school assuming they will take physics and that they’ll do well,

like Paseo junior Stephanie Gonzalez, who's benefiting from MRI's volunteer effort at the school.

"I want to be an architect and I need physics," she said simply.

Her inspiration? Her father. Since the time she was a child, her father helped Stephanie with her homework and made it fun, she said. He's a roofer.

MRI volunteers and the Paseo teachers work after school to provide the class, which the school couldn't have offered otherwise.

And Stephanie comes, two hours a days, three days a week.

The Star's Lindsay Hanson Metcalf contributed to this report. To reach Joe Robertson, call (816) 234-4789 or send e-mail to jrobertson@kcstar.com .